

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference. P06712PC00/ALi	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/SE2005/000203	International filing date (day/month/year) 16-02-2005	Priority date (day/month/year) 20-02-2004
International Patent Classification (IPC) or national classification and IPC See Supplemental Box		
Applicant Karl Andersson		

1.	This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2.	This REPORT consists of a total of <u>6</u> sheets, including this cover sheet.
3.	This report is also accompanied by ANNEXES, comprising: <div style="margin-left: 20px;"> a. <input type="checkbox"/> (sent to the applicant and to the International Bureau) a total of _____ sheets, as follows: <div style="margin-left: 20px;"> <input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. </div> </div> <div style="margin-left: 20px;"> b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions). </div>
4.	This report contains indications relating to the following items: <div style="margin-left: 20px;"> <input checked="" type="checkbox"/> Box No. I Basis of the report <input type="checkbox"/> Box No. II Priority <input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability <input type="checkbox"/> Box No. IV Lack of unity of invention <input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement <input type="checkbox"/> Box No. VI Certain documents cited <input type="checkbox"/> Box No. VII Certain defects in the international application <input type="checkbox"/> Box No. VIII Certain observations on the international application </div>

Date of submission of the demand 16-12-2005	Date of completion of this report 07-03-2006
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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/SE2005/000203

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: **Cover sheet**

International patent classification (IPC)

G01N 33/53 (2006.01)

G01N 33/48 (2006.01)

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/SE2005/000203

Box No. I **Basis of the report**1. With regard to the **language**, this report is based on:

the international application in the language in which it was filed

a translation of the international application into _____,
which is the language of a translation furnished for the purposes of:

international search (Rules 12.3(a) and 23.1(b))



publication of the international application (Rule 12.4(a))



international preliminary examination (Rules 55.2(a) and/or 55.3(a))

2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

the international application as originally filed/furnished



the description:

pages _____ as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____



the claims:

pages _____ as originally filed/furnished

pages* _____ as amended (together with any statement) under Article 19

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____



the drawings:

pages _____ as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____



a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

the description, pages _____



the claims, Nos. _____



the drawings, sheets/figs _____

the sequence listing (*specify*): _____any table(s) related to the sequence listing (*specify*): _____4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

the description, pages _____



the claims, Nos. _____



the drawings, sheets/figs _____

the sequence listing (*specify*): _____any table(s) related to the sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/SE2005/000203

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	<u>1-14</u>	YES
	Claims		NO
Inventive step (IS)	Claims	<u>1-14</u>	YES
	Claims		NO
Industrial applicability (IA)	Claims	<u>1-14</u>	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

Reference is made to the following documents:

D1: US 2003224457 A1
D2: WO 0240632 A2
D3: US 4479720 A
D4: US 2004/0023293 A1

The invention relates to a device for detecting interactions between species in solution and species on a solid support. It comprises a solid support (ii), a mechanism (16) for temporarily reducing the amount of a solution to which said support is exposed, a detector (12) capable of detecting an interaction between species attached to the solid support, and species contained in said solution. The invention also relates to a method comprising attaching a first species on a solid support, exposing said first species to a solution containing a second species, performing a measurement, capable of detecting an interaction between said first and said second species, and a reference measurement. The solution is temporarily removed during the measurement.

D1 describes a method and apparatus for blood typing with optical bio-discs, see abstract.

In column 2, part 14, D1 comprises a bio-disc with capture antibody, application of red blood cells, and separation of non-captured cells by rotating the disc. The disc comprises a capture field, a positive control field, and a negative control field. The disc is thin with compartments for sample fluids, see fig 2. The first species described in claim 1 is

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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: BOX V

considered to correspond to antibodies described in D1. The second species described in claim 1 is considered to correspond to the cells described in D1. The solid support described in claim 1 is considered to correspond to the bio-disc described in D1. The reference area as described in claim 1 is considered to correspond to the control fields described in D1.

Claim 1 does not define the defined area where the amount of liquid is temporarily reduced. It is considered possible that the defined area where an amount of liquid is temporarily reduced, the defined area does not have a species of interest attached, could be separate from the non-overlapping defined areas having a first species attached. Therefore, the invention according to claim 1 could be considered to correspond to a device used in the method as described in claim 3 in D1. In a first step according to claim 3 in D1, serum is removed to a mixing chamber. No species of interest are attached to the area where serum is removed. The serum is removed to a mixing chamber, hence the serum is not wasted and it is considered that the serum is temporarily removed from a defined area (from a separation chamber to a mixing chamber) in the device in D1. The molecule that binds cells is considered to correspond to the first species defined in claim 1 and the cells analysed in D1 are considered to correspond to the species in a liquid according to claim 1.

However, claims 1-5 differ from D1 in that the liquid is temporarily removed during detection and that the liquid is returned after measurement.

It is not clear from claim 6 that the amount of liquid is removed during measurement or that the liquid is returned after the measurement is performed. However, claims 6-14 differ from D1 in that liquid is removed from a defined area containing a first species. It is not clear that liquid is removed when the disc is rotated according to claim 1 in D1.

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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: BOX V

Document D2, describes a method involving aspirating of a solution, see page 24, line 19-page 25, line 10.

Document D4 describes a method of repeated measurements of the same sample where a flow can be stopped during measurements, see page 25, example 26.

The cited documents represent the general state of the art.

The invention defined in claims 1-14 is not disclosed by any of these documents.

The cited prior art does not give any indication that would lead a person skilled in the art to the claimed invention where liquid is temporarily removed during measurement for detecting interactions between species and thereby preventing target-ligand breakdown.

Therefore, the claimed invention is not obvious to a person skilled in the art.

Accordingly, the invention defined in claims 1-14 is novel and is considered to involve an inventive step. The invention is industrially applicable.